

WHAT IS CLAIMED IS:

1. A die bonding method for fine pitch ball grid array package comprising:
inspecting a status of a semiconductor chip, which is on a first mount frame

5 containing a plurality of semiconductor chips, and a status of a land pattern of a
mount tape, wherein the land pattern is formed on one surface of the mount tape
and the other surface of the mount tape is attached to a second mount frame;

transferring the mount tape to a bonding unit after the inspecting of the land
pattern;

10 selecting one of the semiconductor chips that has a status corresponding to
the status of the land pattern; and

transferring the selected chip for bonding to the land pattern.

2. The die bonding method of claim 1, further comprising storing status data
resulting from the inspecting, wherein the status data represents whether each land
pattern of the mount tape is good or defective.

3. The die bonding method of claim 1, wherein transferring the selected chip
comprises:

20 moving the selected chip to the land pattern after performing an alignment if
the selected chip is good; and

moving the selected chip to the land pattern without performing an alignment
if the selected chip is defective.

25 4. The die bonding method of claim 3, wherein if the selected chip is good,
the transferring further comprises further aligning the good semiconductor chip with
the land pattern, after transferring the selected chip to the land pattern which is
placed at the die bonding region.

30 5. The die bonding method of claim 1, wherein inspecting the semiconductor
chips comprises:

inspecting the status of the semiconductor chip using a first CCD camera for
a chip inspection; and

inspecting the status of the land pattern using a second CCD camera between a mount tape stocker and a die bonding unit.

6. The die bonding method of claim 5, wherein the inspecting of the land
5 pattern is performed before the selected chip arrives at the die bonding unit.

7. The die bonding method of claim 6, wherein the second CCD camera inspects the land pattern when the land pattern is temporarily stopped.

10 8. The die bonding method of claim 6, wherein the second CCD camera inspects the land pattern when the land pattern is moving.

15 9. The die bonding method of claim 1, wherein the selecting determines whether the land pattern that is at the die bonding region is good or defective,
if the land pattern is good, the selecting selects a good semiconductor chip;
and
if the land pattern is defective, the selecting selects a defective semiconductor chip.

20 10. The die bonding method of claim 9, wherein when the land pattern is good and an inspected semiconductor chip on the mount frame is defective, the selecting comprises:

25 storing a position of the defective semiconductor chip in a memory;
inspecting another of the semiconductor chips; and
selecting a semiconductor chip that is good from among the semiconductor chips.

11. The die bonding method of claim 10, wherein when the land pattern is defective, the selecting comprises:

30 determining whether a semiconductor chip tray disposed on a transfer path of a chip adsorption member contains a defective semiconductor chip, the chip adsorption member being disposed in a chip transfer unit that connects a chip pickup region and an alignment region; and

when no defective semiconductor chip is in the semiconductor chip tray, using the chip adsorption member to adsorb a defective semiconductor chip from the first mount frame, the defective semiconductor chip being identified from the position which is stored in the memory, and then transferring the adsorbed defective

5 semiconductor chip to the alignment region.

12. Die bonding equipment comprising:

a semiconductor chip pickup stage onto which a wafer mount frame is loaded;

an alignment stage spaced apart from the semiconductor chip pickup stage;

10 a chip transfer unit capable of selecting a semiconductor chip from a wafer mount frame loaded on the semiconductor pickup stage and transferring the semiconductor chip from the semiconductor chip pickup stage to the alignment stage;

15 an inspection unit for inspecting a status and a position of land patterns on a mount tape frame during movement of the mount tape for bonding; and

20 a bonding unit for bonding a land pattern from the inspection unit to the semiconductor chip from the alignment stage.

13. The die bonding equipment of claim 12, wherein the inspection unit comprises a charge coupled device(CCD) camera.

14. The die bonding equipment of claim 12, wherein the chip transfer unit comprises:

25 a linear reciprocating unit;

a semiconductor chip adsorption unit coupled with the linear reciprocating unit and reciprocating along a path between the semiconductor chip pickup stage and an alignment stage; and

30 a semiconductor chip tray disposed along the path of the semiconductor chip adsorption unit, the semiconductor chip tray have capacity to receive at least one defective semiconductor chip.

15. The die bonding equipment of claim 14, wherein the semiconductor chip tray comprises a receiving part on which at least one semiconductor chip is received, the receiving part being formed in one row.

5 16. The die bonding equipment of claim 14, wherein the semiconductor chip adsorption unit comprises:

 a pair of pulleys spaced apart from each other;

 a tension wire rolled on the pair of pulleys;

 a chip adsorbing module coupled with the tension wire, for adsorbing and

10 fixing a semiconductor chip with a vacuum pressure; and

 a driving motor coupled to one of the pair of pulleys, for reciprocating the tension wire and thereby transferring the chip adsorbing module by a selected distance.

15 17. A die bonding method comprising:

 (a) inspecting a land pattern;

 (b) in response to the inspecting indicating that the land pattern is good, performing a first selection process that comprises:

 (b1) inspecting a chip that is on a wafer mount frame;

 (b2) if the inspecting of the chip indicates the chip is good, selecting the chip for bonding to the land pattern and ending the first selection process; and

 (b3) if the inspecting of the chip indicates the chip is defective, inspecting another chip if any remains in the wafer mount frame that previous inspecting has not indicated as defective and returning to step (b2); and

25 (c) in response to the inspecting indicating that the land pattern is defective, performing a second selection process that selects a defective chip for bonding to the land pattern.

30 18. The die bonding method of claim 17, wherein the first selection process further comprises storing status data indicating a chip is defective if the inspecting indicates that the chip is defective.

19. The method of claim 18, further comprising moving a chip that inspecting indicated was defective, to a tray.

20. The die bonding method of claim 19, wherein the second selection
5 process comprises:

selecting a defective chip from the tray for bonding to the land pattern if the tray is not empty; and

selecting a defective chip from the wafer mount frame for bonding to the land pattern if the tray is empty.